Lebanon VAMC Pharmacy

Pharmacotherapy Update

FALL 2013

INSIDE THIS ISSUE:

Editor Notes

- Steve Gruver, PharmD & Dina Norris, PharmD, BCPS

In the field of pharmacy, one product seems to always trump advertising, discussions and patient recommendations during this time of year: flu vaccines! And to make the influenza season even more exciting, there are several new immunization products available in Fall 2013. These include the quadrivalent vaccines expanding the spectrum of influenza B coverage.

Another hot topic is the link that has been published between fish oil and prostate cancer. The examination of whether or not this association holds any weight is the purpose of this issue's literature review. It aims to help provide healthcare professionals with the knowledge to educate patients and make evidence-based decisions regarding the use of fish oil.

Also, this is the introductory issue for the new pharmacy residency class. Feel free to learn a little about us inside. If you find you share any of the same interests or hobbies, stop us in the hall for a quick chat. We look forward to getting to know everyone!

Lastly, the back of the newsletter is equipped with a Fall pharmacy themed wordsearch guaranteed to, at the very least, keep you awake at your desk for a few minutes. Additionally, just when you thought the pharmacotherapy newsletter was all out of fun, there is a practice opioid conversion problem that will change the way you view the world!

Thank you and hope you enjoy!

Get to know the 2013-2014 Pharmacy Residents!!!

New Flu Vaccines!!! (Find out more inside)

Quadrivalent	Trivalent	Egg-Allergy Safe?
FluMist	Fluarix	Flucelvax
Fluarix	FluLaval	Flublok
FluLaval	Fluzone	
Fluzone		

CAN  CAUSE Cancer ?

FISH OIL AND PROSTATE CA

By Andy Santeusanio, PharmD

The Omega-3 Fatty Acids and Prostate Cancer Risk in the SELECT Trial

The omega-3 fatty acids, commonly found in Fish Oil capsules, are frequently touted as one of the safest and most efficacious therapies for treating hypertriglyceridemia. The two primary active components in Fish Oil, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), are both omega-3 polyunsaturated fatty acids that are thought to modulate triglyceride synthesis and inflammation through the inhibition of tumor necrosis factor and the modification of eicosanoid activity. However, in recent months several studies have emerged with findings that omega-3 fatty acid concentrations may be linked to the development of prostate cancer in men, raising the question of a possible association between omega-3 fatty acid supplementation with Fish Oil and prostate cancer risk.

One of the primary studies evaluating this link between omega-3 fatty acids and prostate cancer was a case-cohort nested within the SELECT trial, a study originally designed to assess whether selenium or vitamin E reduced prostate cancer risk. However, the SELECT trial was recommended to be discontinued by the Data and Safety Monitoring Committee prior to its completion due to a perceived lack of protective benefit based on observed cancer rates. After additional follow-up it was also later reported that vitamin E in fact increased prostate cancer risk by 17% among patients enrolled in the trial. Participants were selected from this population of SELECT trial patients for inclusion in the omega-3 fatty acid cohort as a part of the study

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PHARMACY RESIDENTS

(2013-2014)

Nicole Paronish - PGY-2 [LEFT]

Hometown: Munster, PA

Pharmacy School: Duquesne University

PGY-1: Gainesville, FL VAMC (geriatrics focus)

Fun Facts: Loves watermelon, Halloween (CANDY!) and any type of music.

Favorite Quote: "Always behave like a duck - keep calm and unruffled on the surface, but paddle like the devil underneath" - Jacob M. Braude

Amanda Li - PGY-2 [RIGHT]

Hometown: Clinton Twp, MI

Pharmacy School: University of Michigan

PGY-1: Children's Mercy Hospital, Kansas City, MO

Fun Facts: Loves Thai food and all of the food that accompanies Thanksgiving. Listens to top 40 music.

Favorite Animals: 2 dogs - maltese & chiweenie

Andy Santeusanio - PGY-1 [RIGHT]

Hometown: Hershey, PA

Pharm. School: University of Pittsburgh

Favorite Food: Any Seafood

Favorite Holiday: Christmas (enjoys the lights & cooler temps.)

Favorite Music: Indie Rock

Fun Facts: Loves soccer & is notorious for having purple pants

Tawes Allan Harper - PGY-1 [LEFT]

Hometown: Cambridge, MD

Pharm. School: University of Maryland Eastern Shore

Favorite Food: $0.99 grilled cheese sandwiches with fried onions

Favorite Holiday: Bloomsday

Last 5 Plays on Spotify: Devo-(I Can't Get No) Satisfaction/ Stephen Malkmus-Ballad of a Thin Man/ D'Angelo -She's Always in My Hair/ Solange-Losing You/ The Feelies-The High Road

Steve Gruver - PGY-1 [MIDDLE]

Hometown: Wilkes-Barre, PA

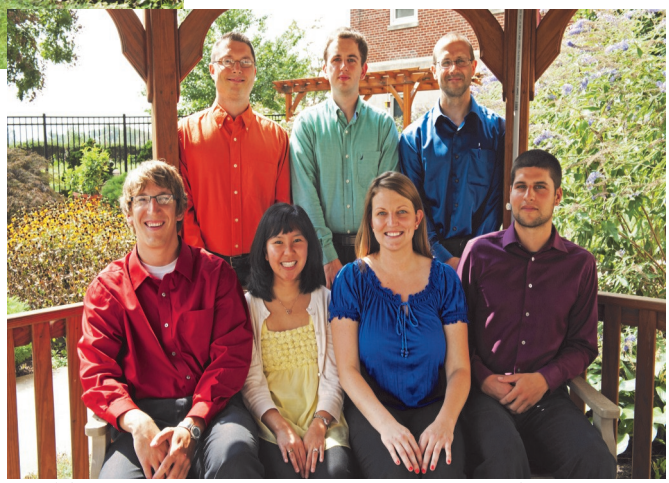
Pharm. School: Wilkes University

Favorite Food: Pizza Burgers

Fav. Holiday: Thanksgiving

Favorite Music: Anything; O.A.R.

Fun Facts: Once spent some time in the Philadelphia VA as a patient



Pharmacy Residents

Dan Laster - Non-traditional PGY-1

[LEFT]

Hometown: Elkton, KY

Pharmacy School: Samford University McWhorter School of Pharmacy, Birmingham, AL

Favorite Foods: Chicken 'n' broccoli. Linguini in alfredo sauce

Favorite Music: Hard Rock—105.7 the X

Fun Facts: Once sang Barbara Ann in a lipsyncing contest

Eric Nerino - Non-traditional PGY-1

[RIGHT]

Hometown: Reading, PA

Pharmacy School: Temple University

Favorite Food: Fried Chicken

Favorite Music: Anything on WXPN

Fun Facts: Used to play catcher in baseball and threw out 4 runners tryin' to steal 2nd base; collects beer cans.

Cont. Fish Oil & Prostate CA

The Omega-3 Fatty Acids and Prostate Cancer Risk in the SELECT Trial

group if they had baseline blood samples available and were diagnosed with primary prostate cancer before July 31, 2009. For each patient included in the study arm an age and race matched individual was also selected to populate a control arm comprised of patients without a diagnosis of prostate cancer. Eventually 834 men diagnosed with prostate cancer were enrolled in the cohort along with 1393 men selected randomly by age and race for the control group. For each of these patients mean percentages of long-chain fatty acids as a proportion of total fatty acid weight were measured for the omega-3 fatty acids, the omega-6 fatty acids, and the trans-fatty acids. Hazard ratios and 95% confidence intervals were then calculated to assess potential associations between fatty acid concentrations and the incidence of prostate cancer.

Following data analysis the mean percentages of total omega -3 fatty acids were found to be statistically significantly higher in prostate cancer subjects compared to patients in the control group (4.66% vs. 4.48%), and men in the highest quartile of omega-3 fatty acid concentrations had a 44% increased risk of prostate cancer relative to men in the lowest quartile. Meanwhile, omega-6 fatty acid and trans-fatty acid proportions were similar across both the study and control groups leading the authors to conclude that men with high blood concentrations of the omega-3 fatty acids but not omega-6 or trans-fatty acids are at an increased risk of prostate cancer.

Several important factors need to be taken into consideration though when analyzing the results of this cohort with respect to clinical impact. First, patients were selected for this cohort from a population of patients who had been previously receiving a medication, vitamin E, shown in the larger SELECT trial to increase prostate cancer risk by 17%. Additionally, fatty acid concentrations were only measured at baseline and at no other point in time during this cohort. As fatty acid proportions are relatively labile, this one-time assessment could have been influenced by the patient's previous meal and does little to identify whether or not someone's fatty acid levels are chronically elevated. Finally, this study does not specifically examine the effects of Fish Oil on omega-3 fatty acid stores and the incidence of prostate cancer. The trial was not powered to discover this association so the results need to be interpreted with caution when assessing the clinical significance of this data. Ultimately more long-term studies are needed to better evaluate the potential link between Fish Oil and prostate cancer, but in the meantime risk factors and perceived clinical benefit should be weighed in all patients prior to prescribing or withholding this medication from patients who would derive a significant benefit from its use. [Reference: Brasky TM, Darke AK, Song X et al. Plasma phospholipid fatty acids and prostate cancer risk in the SELECT trial. *J Natl Cancer Inst.* 2013; 105(14): 1-10.]

Table 1

Fatty Acid (% of Total)	No Cancer (N = 1364)	Total Cancer (N = 834)	P – Value
O-3 Fatty Acids			
Total O-3FA	4.48 (4.41-4.55)	4.66 (4.56-4.75)	0.002
EPA	0.61 (0.60-0.63)	0.65 (0.63-0.68)	0.03
DPA	0.86 (0.85-0.87)	0.90 (0.90-0.91)	< 0.001
DHA	2.91 (2.86-2.96)	3.01 (2.95-3.08)	0.006
O-6 Fatty Acids			
Linoleic Acid	19.03 (18.88-19.18)	18.95 (18.76-19.14)	0.17
Arachidonic Acid	11.40 (11.28-11.52)	11.20 (11.05-11.35)	0.17
Trans-Fatty Acids			
TFA 18:1	1.41 (1.38-1.44)	1.45 (1.41-1.50)	0.048
TFA 18:2	0.20 (0.20-0.21)	0.21 (0.20-0.21)	0.08
TFA 16:1	0.21 (0.21-0.21)	0.22 (0.21-0.22)	0.002

FLU VACCINE UPDATE

What kinds of flu vaccines options are available for this year?

By Dina Norris, PharmD, BCPS

This year we have several different options of influenza vaccines, we have a vaccine that protects against the traditional flu of three different flu viruses (called "trivalent" vaccines) as well as one that was made to protect against four different flu viruses called the "quadrivalent" vaccine. The Lebanon VA Medical Center is only offering the vaccine with trivalent flu protection.

The trivalent flu vaccine protects against two influenza A viruses and an influenza B virus. The following trivalent flu vaccines are available:

- Standard dose trivalent vaccines that are manufactured using virus grown in eggs; these are approved for patients 6 months and older.
- A standard dose trivalent shot containing virus grown in cell culture which is approved for people 18 and older.
- A standard dose trivalent shot that is egg free approved for people 18-49 years old
- A high dose trivalent shot for people 65 and older.
- A standard dose intradermal trivalent shot which is injected into the skin instead of the muscle and uses a much smaller needle than the regular flu shot. This is approved for people 18-64 years of age.

The quadrivalent flu vaccine protects against two influenza A viruses and two influenza B viruses. The following quadrivalent flu vaccines are available:

- A standard dose quadrivalent shot
- A standard dose quadrivalent flu vaccine, given as a nasal spray, approved for healthy* people 2 through 49 years of age. (Healthy indicates persons who do not have a medical condition that predisposes them to flu complications)

Of note, the CDC doesn't recommend one version of the flu vaccine over another but they do recommend everyone to get a flu shot each and every year to protect against the flu!

Who Should Get Vaccinated Against Influenza?

Everyone older than 6 months is recommended for flu vaccination with rare exception. People who have ever had a severe allergic reaction to eggs or who had a severe allergy to any part of the flu vaccine may be advised to not get vaccinated. People who have had a mild reaction to egg – those which involved only hives- may receive the flu shot with additional precautions. Make sure your healthcare provider knows about any allergic reactions. Most but not all types of influenza vaccine contains small amounts of egg.

The following groups should not receive the nasal spray vaccine:

1. **Children younger than 2 years of age**
2. **Adults 50 years and older**
3. **People with a history of severe allergic reaction to any component of the vaccine or to a previous dose of any influenza vaccine**
4. **People with asthma**
5. **Children or adolescents on long-term aspirin treatment**
6. **Children and adults who have chronic pulmonary, cardiovascular (except isolated hypertension), renal, hepatic, neurologic/neuromuscular, hematologic, or metabolic disorders**
7. **Children and adults who have immunosuppression**
8. **Pregnant women**

The following groups should not receive the flu shot:

1. **People who have ever had a severe allergic reaction to the influenza vaccine**
2. **People with a history of Guillain-Barre Syndrome that occurred after receiving influenza vaccine and who are not at risk for severe influenza should generally not receive vaccine.**
3. **People who are moderately or severely ill with or without fever can usually wait until they recover before getting influenza injections. People with a mild illness can usually get the vaccine.**

The following groups should not receive certain types of flu shots:

1. People under 65 years of age shouldn't receive the high dose flu shot
2. People who are under 18 years old or over 64 years old should not receive the intradermal flu shot.

References: Information accessed on 10/21/13: http://www.cdc.gov/flu/protect/keyfacts.htm

Phall Pharmacy

WORDSEARCH

s	m	y	s	q	e	q	i	t	f	w	e	n	t	x
v	e	t	e	r	a	n	s	d	a	y	m	i	r	s
o	q	g	u	t	o	v	q	w	h	a	k	c	y	i
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w	b	m	q	m	w	e	d	o	h	f	p	n	j	e

AZITHROMYCIN
BOOGERS
DRUGSHORTAGES
FLUSHOT
HALDOLWEEN
OSELTAMIVIR
PHARMACYWEEK
SNEEZING
TAMIFLU
TRYPTOPHAN
VETERANSDAY
ZPAK

Opioid Conversion Review

$$\frac{a}{b} = \frac{c}{d} \rightarrow ad = bc$$

Practice Problem:

[Provide both long-acting and breakthrough regimens.]

Patient's current regimen

- MS Contin 30mg PO every 8 hours
- MSIR 15mg PO every 4 hours as needed (Patient uses 4 doses/day)

Convert patient to an oxycodone regimen.

General Tips

- Add up total daily dose (TDD) including avg. breakthrough use
- Convert utilizing equianalgesic table
- Reduce by 25-50% due to cross tolerance
- Breakthrough = 10-20% of TDD

Possible Answers:

[Considering available formulary products]

Reduce by 25-50% = 50-75mg TDD

- Oxycodone SA 30mg (2 x 15mg) PO BID
- Oxycodone SA 40mg PO BID
- Breakthrough - Oxycodone IR 5mg OR 10mg every 4 hours PRN (depending on patient needs)

Drug Name	Equianalgesic Dose		Oral to Parenteral Ratio
	Oral (mg)	Parenteral (mg)	
Morphine	30	10	3:1
Hydromorphone	7.5	1.5	5:1
Oxycodone	20	N/A	N/A
Hydrocodone	30	N/A	N/A
Codeine	200	130	1.5:1